E-Commerce and Nuclear Weapons

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On Thursday, police in Japan announced they were prosecuting a man who was caught selling Americium. He bought the material on the internet. But how did he get hold of it so easily?

Americium-241m, the form that was involved, could be used in a nuclear weapon. Americium is not normally the material you think of when talking about nuclear weapons, usually it's uranium and plutonium. In fact, it has never been used in any nuclear weapons test or is in any current device. However, an Americium weapon is possible.

The IAEA has deemed just 25 kg to be the amount needed for a bomb. Before we panic too much, this purchase likely involved - although we don't have the numbers - a tiny amount. We use microgram amounts of Americium in smoke detectors and radiation meters. In this case, the man was allegedly trying to cash in on a shortage of radiation detectors in the wake of the Fukushima disaster.

The broader issue is that it is all too easy to find nuclear-related materials on the internet, often through very reputable sites. The Nuclear Suppliers Group provides export control lists of nuclear-related materials and components that could be used in a nuclear power program or nuclear weapons program.

Our colleagues at project Alpha, a King's College London centre of expertise for export controls, have looked in particular at Alibaba. Aluminium, maraging steel, and carbon fibre for centrifuge production are just a few of the many items available on the site.

This problem goes way beyond the largest e-commerce platform. There are hundreds of sites that allow buyers and sellers to connect in online marketplaces with sites based on every continent. They range from sites that allow consumers to sell directly to other consumers like eBay; to Amazon, which started out with businesses connecting to consumers; to the sites of most interest, the business to business or B2B sites.

B2B sites are the most important because an industrial nuclear program requires large numbers of technologically advanced components. Other types of site might be able to give you what you want, but in small quantities only and could leave nuclear programs out in the cold if more of the same material were needed.

Export lists of controlled items are all well and good, but it may be possible to bypass lists and acquire similar items that are not export controlled. For instance, items that aren't quite good enough to be prohibited by export controls but could be modified by clever engineers and scientists. Online marketplaces are the ideal shopping centres for such activity. Not only can you search for items but it is also possible to place a tender stating exactly what you want.

Conducting transactions online is ideal for illicit procurement. In many cases the interaction takes place using online aliases with only an end destination address and payment information provided by the buyer. Export controls, including the end-use, end-user address and port controls are still required for any online purchase. However, without verification of how the items are actually going to be used and the country they are finally destined for this can be a flawed exercise. Online procurement obfuscates this entire process, and forwarding to a final destination, such as Iran or North Korea, after going through an intermediary state with weaker controls is possible.

Through research presented at the Symposium on International Safeguards in Vienna in October, ICSA identified over 50 sites where nuclear-related items might be procured. This is clearly a widespread problem that goes far beyond hapless opportunists in Japan and deserves attention from the safeguards community.